CLAIMS:

1. A safety shutoff apparatus for closing a valve, comprising:

a pressure operable device coupled to said valve for acting upon said valve;

a pressure line having a distal port and a proximal end, the proximal end of said pressure line being coupled to said pressure operable device for applying fluid pressure thereto in order to operate said pressure operable device; and

a soluble plug at the distal port of said pressure line for sealing said pressure line in order to maintain if the pressure through said pressure line at said pressure operable device.

2. A safety shutoff apparatus according to claim 1 wherein said pressure operable device is operable to keep said valve open in response to pressure in said pressure line exceeding 5 psi.

3. A safety shutoff apparatus according to claim 1 wherein said pressure line is longer than 30 cm.

4. A safety shutoff apparatus according to claim 1 wherein said pressure line has a first port and a second port communicating with said pressure operable device, said soluble plug including a first and a second soluble seal mounted at said first and said second port, respectively.

5. A safety shutoff apparatus according to claim 1 wherein said pressure line has a first branch and a second branch communicating with said pressure operable device, said soluble plug including a first and a second soluble seal mounted distally in said first and said second branch, respectively.

6. A safety shutoff apparatus according to claim 1 wherein said pressure line has a service branch terminating with a fitting adapted to connect to a

source for pressurizing said pressure line.

7. A safety shutoff apparatus according to claim 1 comprising:

a pump for pressurizing said pressure line.

8. A safety shutoff apparatus according to claim 1 comprising:

a sleeve attached to said pressure line, said soluble plug being mounted in said sleeve.

9. A safety shutoff apparatus according to claim 8 wherein said sleeve has an internal seal coating for sealing said soluble plug to said sleeve.

10. A safety shutoff apparatus according to claim 8 wherein said sleeve has a fitting for coupling said sleeve to said pressure line.

11. A safety shutoff apparatus according to claim 8 wherein said sleeve has a fitting for detachably coupling said sleeve to said pressure line.

12. A safety shutoff apparatus according to claim 8 wherein said sleeve has an inner chamber and a larger outer chamber, said soluble plug being mounted in said larger outer chamber, said safety shutoff apparatus comprising:

a stopper slidably mounted in said inner chamber between said soluble plug and said pressure line.

13. A safety shutoff apparatus according to claim 8 wherein said sleeve has an inwardly diverging throat containing said soluble plug.

14. A safety shutoff apparatus according to claim 8 wherein said sleeve has a plurality of side orifices.

15. A safety shutoff apparatus according to claim 1 comprising:

a biasing device for urging said valve to close.

16. A safety shutoff apparatus according to claim 1 comprising:

a catch for normally preventing closure of said valve, said pressure operable device being operable to release said catch and allow closure of said valve.

17. A safety shutoff apparatus according to claim 16 comprising:

a spring for urging said valve to close.

18. A safety shutoff apparatus according to claim 16 wherein said valve has a rotatable operating handle with an opening, said catch normally engaging said opening in said handle, said catch being retractable from said opening to release said handle.

19. A safety shutoff apparatus according to claim 16 wherein said valve has a rotatable operating handle, said catch comprising:

a pin mounted to retract relative to said handle in an axial direction.

20. A safety shutoff apparatus according to claim 16 wherein said valve has a rotatable operating handle, said catch comprising:

a cam rotatably driven by said pressure operable device to retract relative to said handle.

21. A safety shutoff apparatus according to claim 16 wherein said valve has a rotatable operating handle, said catch comprising:

a lever rotatably driven by said pressure operable device to retract relative to said handle.

22. A safety shutoff apparatus according to claim 16 wherein said pressure operable device comprises a pneumatic cylinder.

23. A safety shutoff apparatus according to claim 1 wherein said valve has an operating handle, said safety shutoff apparatus comprising:

a spring coupled to said handle for urging said valve to close.

24. A safety shutoff apparatus according to claim 23 wherein said spring is an extension spring coupled to said handle to swing it.

25. A safety shutoff apparatus according to claim 24 wherein said valve has a pipe, said safety shutoff apparatus comprising:

a standoff adapted to clamp to said pipe, said spring being stretched between said standoff and said handle.

26. A safety shutoff apparatus according to claim 1 comprising:

a torsion spring mounted to apply a torque to said valve in a manner that tends to close said valve.

27. A safety shutoff apparatus according to claim 26 wherein said valve has a movable member, said safety shutoff apparatus comprising:

a stator mounted at said valve with restricted ability to rotate, said stator having an inner and an outer flange; and

a rotor mounted about said stator adjacent said inner flange, said torsion spring being mounted on said stator and being coupled between said outer flange and said rotor in order to drive them toward a neutral relative angular orientation, said rotor being coupled to said movable member of said valve, said spring being mounted in a position tending to rotate said movable member of said valve in a predetermined direction.

28. A safety shutoff apparatus according to claim 27 wherein said spring can be angularly adjusted to change the angular orientation between said outer flange and said rotor when in the neutral relative angular orientation.

29. A safety shutoff apparatus according to claim 28 wherein said stator has an abutment arm to engaging stationary structure on said valve, said rotor having a driving arm for engaging the movable member of said valve.

30. A safety shutoff apparatus according to claim 1 wherein said pressure operable device comprises a pneumatic cylinder.

31. A safety shutoff apparatus according to claim 1 wherein said pressure operable device comprises a bellows.

32. A safety shutoff apparatus according to claim 1 wherein said pressure operable device comprises a bladder.

33. A safety shutoff apparatus according to claim 1 wherein said pressure operable device comprises a vessel with an inlet and a diaphragm, said vessel being pressurizable through said inlet to distend said diaphragm.

34. A safety shutoff apparatus according to claim 1 comprising:
an accumulator for stabilizing pressure in said pressure line.

35. A safety shutoff apparatus according to claim 34 wherein said accumulator comprises:
a chamber having an inflatable member.

36. A safety shutoff apparatus according to claim 34 wherein said accumulator comprises:
a chamber having a spring biased piston.

37. A method for closing a valve with a pressure operable device that is coupled to a pressure line having a distal port sealed with a soluble plug,

comprising the steps of:

pressurizing said pressure line sufficiently to cause the pressure operable device to maintain the valve in an open condition;

contemporaneously placing the soluble plug next to an object that is subject to leaking to allow in response to leaking from said object dissolution of said soluble plug and release of pressure in said pressure line; and

closing the valve when mechanical movement is produced by the pressure operable device in response to pressure being released from said pressure line.

38. A method according to claim 37 comprising the step of:

routing said pressure line with at least two branches serving different objects subject to leaking, each of the branches being sealed with a soluble plug.

39. A method according to claim 37 wherein the pressure line has at least two soluble plugs, the method comprising the step of:

routing said pressure line with the at least two soluble plugs serving different objects that are subject to leaking.

40. A method according to claim 37 wherein the step of pressurizing the pressure line is performed by creating a pressure of no more than 5 psi.

41. A method according to claim 37 comprising the step of:

periodically repressurizing the pressure line.

42. A method according to claim 37 wherein the valve is biased to close, the method comprising the step of:

placing a catch in a position to prevent closing of the valve; and

releasing the catch using the pressure operable device.